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10/670,443	09/25/2003	Manish Vaishya	2002P18118US01	5522

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EXAMINER	
FAULK, DEVONA E	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/670,443	VAISHYA, MANISH	
	Examiner	Art Unit	
	Devona E. Faulk	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 9/25/3003.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13,15-20 is/are rejected.

7)☒ Claim(s) 14 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to because of the following informalities: Claim 14 recites the same claim language as claim 3 and both are dependent upon claim 1. Appropriate correction is required. Note that claim 3 has been rejected and claim 14 would be rejected under the same art even if dependent upon claim 13 or 20.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale.in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1,2,7,8,13,18,19** are rejected under 35 U.S.C. 102(b) as being anticipated by Pfaff (EP 0 479 367).

Regarding **claim 1**, Pfaff discloses a method for controlling induct induction sound of an internal combustion engine (Figure 1), comprising determining a first sound pressure during a run up of said engine, wherein said first sound pressure is based on each order of sound generated by said engine; operating said engine under a plurality of operating conditions; determining a second sound pressure for each of said operating conditions; obtaining current vehicle operating conditions; decomposing said first and second sound pressures and said frequency response into engine orders (page 5, line 36-page 6, line 12); and generating a net control signal based on each of said first and second sound pressures and said vehicle operating

conditions to control said sound wherein each individual order is controlled independently (See Abstract, page 4-page 6).

Regarding **claim 2**, Pfaff discloses further including determining a frequency response of a microphone and a speaker used in computing said first and second sound pressures (page 4, lines 8-34).

All elements of **claim 7** are comprehended by claim 1.

Regarding **claim 8**, Pfaff further discloses controller (26) including amplifiers, filters, A/D converters, D/A converters, frequency multipliers, counters and other known input/output signal conditioning circuitry (page 4, lines 42-48).

Regarding **claim 13**, Pfaff discloses a method for controlling induction sound of an internal combustion engine (Figure 1), comprising computing a first and second sound pressure during a run up of said engine, wherein said first and second sound pressure is based on each order of sound generated by said engine; operating said engine under a plurality of operating conditions; computing a second sound pressure for each of said operating conditions; computing a frequency response of a microphone and a speaker used in computing said first and second sound pressures; obtaining current vehicle operating conditions (page 5, line 36-page 6, line 45) ; decomposing said first and second sound pressures and said frequency response into engine orders (page 5, line 36-page 6, line 12); and generating a net control signal in real time based on each of said first and second sound pressures, said frequency response and said vehicle operating conditions to independently control individual orders of said sound (See Abstract, page 4-page 6).

All elements of **claim 18** are comprehended by claim 13 (28, Figure 1).

Regarding **claim 19**, Pfaff further discloses controller (26) including amplifiers, filters, A/D converters, D/A converters, frequency multipliers, counters and other known input/output signal conditioning circuitry (page 4, lines 42-48).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff (EP 0479 367 A2) in view of Duckworth et al. (U.S. Patent 5,627,529).

Claim 3 claim the method according to claim 1, wherein said vehicle operating conditions are obtained by a transceiver from a vehicle database. As stated above apropos of claims 1, Pfaff meets all elements of these claims. Therefore, Pfaff meets all elements of claims 3 with the exception of the claimed matter. Duckworth teaches of a vehicle control system including transceiver that obtains vehicles operating conditions from a vehicle databus (See Abstract). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention in order to have the ability to selectively transmit control signals.

6. **Claims 4,5,15 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff (EP 0479 367 A2) in view of Todter et al. (U.S. Patent 5,937,070).

Claims 4 and 15 claim method of claim 1 and the method of claim 13 respectively, wherein said signal includes a gain factor for attenuating sound. As stated above apropos of

claims 1 and 13, Pfaff meets all elements of these claims. Therefore, Pfaff meets all elements of claims 4 and 15 with the exception of the claimed matter. Pfaff further discloses controller (26) including amplifiers, filters, A/D converters, D/A converters, frequency multipliers, counters and other known input/output signal conditioning circuitry (page 4, lines 42-48) and a speaker (28) that can obviously include either a gain factor or apply some enhancement to the signal. Todter discloses the concept of a signal including a gain factor for attenuating sound (column 12, lines 26-30). Thus it would have been obvious to one of ordinary skill in the art to use Todter's concept of a signal including a gain factor for attenuating sound for the benefit of maintaining a positive phase margin.

Claims 5 and 16 claim the method of claim 1 and the method of claim 13 respectively, wherein said signal includes applying a gain factor for enhancing said sound. Todter discloses applying a gain factor for enhancing said sound. As stated above apropos of claims 1 and 13, Pfaff meets all elements of these claims. Therefore, Pfaff meets all elements of claims 5 and 16 with the exception of the claimed matter. Pfaff further discloses controller (26) including amplifiers, filters, A/D converters, D/A converters, frequency multipliers, counters and other known input/output signal conditioning circuitry (page 4, lines 42-48) and a speaker (28) that can obviously include either a gain factor or apply some enhancement to the signal. Todter discloses the concept of applying a gain factor for enhancing sound (column 12, lines 26-30). Thus it would have been obvious to one of ordinary skill in the art to use Todter's concept of a signal including a gain factor for attenuating sound for the benefit of maintaining a positive phase margin.

7. **Claims 6,12 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff (EP 0479 367 A2) in view of Kinoshite et al. (U.S. Patent 5,245,664).

Claims 6 and 17 claim the method of claim 1 and the method of claim 13 respectively, wherein said signal includes a correction factor for each of said operating conditions. As stated above apropos of claims 1 and 13, Pfaff meets all elements of these claims. Therefore, Pfaff meets all elements of claims 6 and 17 with the exception of the claimed matter. Kinoshite discloses the concept of a signal including a correction factor for an operating condition (column 5, line 66-column 6, line 25). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use Kinoshite's concept of a signal including a correction factor as claimed in order to account for any differences between various signals.

Claim 12 claims the method of claim 1 further including a time delay between said engine operating conditions. As stated above apropos of claim 1, Pfaff meets all elements of that claim. Therefore, Pfaff meets all elements of claim 12 with the exception of the claimed matter. Kinoshite discloses the concept of including a time delay between said engine operating conditions (column 6, lines 15-25). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use Kinoshite's concept of including a time delay as claimed in order to account for any differences in signal propagation times.

8. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff (EP 0479 367 A2) in view of Kuo (U.S. Patent 5,940,519).

Claim 11 claims the method of claim 1, wherein said controller utilizes an algorithm that uses a Nyquist criterion. . As stated above apropos of claim 1, Pfaff meets all elements of that claim. Therefore, Pfaff meets all elements of claim 11 with the exception of the claimed matter.

Pfaff teaches of using algorithms, but fails to specify using a Nyquist criterion (page 7, lines 6-18). Kuo discloses an active noise control system that utilizes an algorithm that uses a Nyquist criterion (column 10, line 61- column 11, line 18). The Nyquist frequency and theorem are well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use Kuo's concept of using a Nyquist criterion in order to prevent aliasing.

9. **Claims 9 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff (EP 0 479 367) in view of Cairns (U.S. Patent Application 2002/0097884).

Claim 9 claims the method of claim 1, wherein said decomposing said first and second sound pressures and said frequency response into engine orders include generation of loop-up tables. As stated above apropos of claim 1, Pfaff meets all elements of that claim. Therefore, Pfaff meets all elements of claim 9 with the exception of generating loop-up tables. Cairns teaches of generating look-up tables (paragraph 15). Thus it would have been obvious to one of ordinary skill to use Cairns's concept of generating look-up tables in order to have better representative data of the vehicle.

Regarding **claim 20**, Pfaff discloses a method for controlling induction sound of an internal combustion engine (Figure 1) comprising a determination of a first sound pressure during a run up of said engine, wherein said first sound pressure is based on each order of sound generated by said engine; providing a second look-up table based on a determination of a second sound pressure, wherein said second sound pressure is computed for each of a plurality of operating conditions of said engine; and obtaining current vehicle conditions; and generating a net control signal based on said first and second sound pressures, wherein each individual order is controlled independently (See abstract). Pfaff fails to discloses generating look-up tables.

However the concept of generating look-up tables as claimed was well known in the art at the time of filing as taught by Cairns. Cairns teaches of generating look-up tables (paragraph 15). Thus it would have been obvious to one of ordinary skill to use Cairns's concept of generating look-up tables in order to have better representative data of the vehicle.

10. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff (EP 0 479 367) in view of Cairns (U.S. Patent Application 2002/0097884) in further view of Lampert et al. (U.S. Patent 6,237,575).

Claim 10 claims the method of claims the method of claim 9 further including a microcontroller for storing said loop-up tables. As stated above apropos of claim 9, the combination of Pfaff and Cairns meets all elements of that claim. Therefore, the combination meets all elements of claim 10 with the exception of the claimed matter. Lampert discloses the concept of a microcontroller storing loop-up tables (column 13, lines 22,25). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use Lampert's concept of a microcontroller storing look-up tables for the benefit of not having to reproduce the data once it is obtained.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,692,052 to Tanaka et al. discloses an engine noise control apparatus.

U.S. Patent 6,363,156 to Roddy discloses an integrated communication system for a vehicle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 703-305-4359. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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